

Nalco Docket No. 7774  
Customer No. 49459

### REMARKS

Claims 1, 2, 8, 10 to 29, and 32 to 35 are pending in this Application. Claims 12 to 29 stand withdrawn. Applicants have cancelled Claim 2 and have amended Claims 1, 11, and 34. No new matter has been added.

### CLAIM INTERPRETATION

The Examiner repeats the request that Applicants clarify interpretation of certain claim elements. The Examiner states, "Two structures appear to be set forth as the 'metal-silicate lattice microstructure' and the macrostructure as amorphous or crystalline, wherein the microstructure results from the presence of the metal cation formation with the silicic acid to form the colloidal particles." (Office Action at Page 2).

Applicants respectfully point the Examiner's attention to the instant Specification at page 9, lines 2 to 3, which states, "The solid phase in an embodiment is amorphous and has a number of particles that are generally spherical in shape." Also, Page 11, lines 6 to 7 of the Specification state, "The multiple layered colloid particles of the present invention are generally spherical in shape." The Specification continues to describe the lattice structure as:

A colloid with the metal dispersed within the silicate (i.e., incorporated into the particle framework as discussed above), such as having a homogenous distribution of the metal component throughout the entire solid phase of the colloid. Not wishing to be bound by any particular theory, it is believed that the dispersion and loading of the metal is obtained as the copolymerization forms a metal-silicate lattice throughout the microstructure of the solid phase.

(Page 9, lines 18 to 23).

The microstructure of the solid phase thus includes colloidal particles having an amorphous and generally spherical shape with a copolymerized metal-silicate lattice within the particles. And the colloidal particles may be further processed into crystalline form.

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CLAIM REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

The Office Action rejected Claims 34 and 35 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

Applicants have amended Claim 34. Accordingly, Applicants respectfully submit that this rejection has been overcome and respectfully request that this rejection be withdrawn.

CLAIM REJECTIONS UNDER 35 U.S.C. §§ 102

The Office Action rejected Claims 1 and 2 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,597,512 to Watanabe et al. ("Watanabe"). Applicants respectfully disagree with and traverse this rejection. Nonetheless, Applicants have amended Claim 1 to clarify its elements and have cancelled Claim 2.

The Examiner contends that because the claims are open to trace concentrations as little as 1 part per million of the metal, "[t]his reads on what applicants characterize as negligible or what is accepted as trace amounts. (Office Action at page 6, paragraph 13).

The range of Amended Claim 1 is from about 0.01 wt% to about 35 wt % of the metal based on silica (i.e., from about 100 ppm to about 350,000 ppm). Moreover, Watanabe discloses silica particles that are elongated-shaped. Watanabe in no way discloses amorphous and generally spherical colloidal particles. A claim is anticipated when each and every claim element . . . [is] shown, either expressly or inherently, in a single prior art reference. *In re Schreiber*, 128 F.3d 1473,1477 (Fed. Cir. 1997). Watanabe neither inherently nor expressly discloses amorphous and generally spherical colloidal particles having a metal content from about 0.01 wt% to about 35 wt%.

In addition, it is well known that the use of magnesium and calcium in the fashion disclosed in Watanabe creates a non-covalent, ion-exchangeable interaction between the metal ions and the silica. This type of interaction indicates that these cations are only in solution and

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are not covalently bound to the silica framework, in contrast to the claimed invention. Watanabe indicates the presence of alkaline earth cations, added based on CaO and MgO, which lead to cations in solution and not as part of a metal-silicate lattice.

Therefore, Applicants respectfully assert that Claim 1 is patentably distinct over Watanabe and respectfully request withdrawal of this rejection.

The Office Action also rejected Claims 1, 2, 8, 10, and 32 to 35 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,287,086 to Finlayson et al. ("Finlayson"). Applicants respectfully disagree with and traverse this rejection.

The Examiner responded to Applicants' previous arguments with regard to this rejection and stated, "[T]he modification of natural materials disclosed in the Finlayson et al reference renders them synthetic. Claims are given their broadest interpretation in light of the specification during examination." (Office Action at page 6, paragraph 14).

Applicants respectfully point the Examiner's attention to Section 2111 of the MPEP, which states, "The Patent and Trademark Office determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest **reasonable** construction 'in light of the specification as it would be interpreted by one of ordinary skill in the art.'" *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, (Fed. Cir. 2004) (emphasis added).

Interpreting Claim 1 to include modified naturally occurring materials is beyond the reasonable scope of that claim. The nature of the instant invention is to form the synthetic metal-containing colloidal silicate particles from raw materials as described throughout the specification. Interpreting the instant invention to include modified naturally occurring clays, for example, smectite and bentonite, is not a reasonable construction of the claims.

Applicants respectfully assert that Claims 1, 8, 10, and 32 to 35 are patentably distinct from Finlayson. Applicants therefore respectfully request that this rejection accordingly be withdrawn.

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The Office Action further rejected Claims 1, 2, 8, 10, 11, and 32 to 35 under 35 U.S.C. § 102(b) as being anticipated by Mintova and Valtchev, "Effect of silica source on the formation of nanosized silicalite-1: an in situ dynamic light scattering study," Microporous and Mesoporous Materials, 55 (2002): 171 to 179 ("Mintova"). Applicants respectfully disagree with and traverse this rejection.

With regard to Mintova, the Examiner contends the sodium employed in the Mintova process "would be covalently bound as an oxide." (Office Action at page 6, paragraph 15). Applicants respectfully reassert that silicalite-1 nanocrystals (as disclosed in Mintova) are known in the art to be void of *covalently* attached metal. The presence of residual ion-exchangeable, non-covalently bound metal in the Mintova materials does not anticipate the presence of covalently copolymerized metal as in the instant invention.

Mintova thus fails to disclose a synthetic metal-containing colloidal silicate composition as in Claim 1. Mintova discloses neither a metal-silicate lattice solid phase having colloidal particles nor a metal covalently copolymerized and incorporated into the lattice within the colloidal particles. Rather, Mintova discloses methods of forming silicalite-1 nanocrystals, which are well known to be void of covalently attached (i.e., non ion exchangeable) metal.

Therefore, Applicants respectfully assert that Claims 1, 8, 10, 11, and 32 to 35 are patentably distinct from Mintova. Applicants respectfully request that this rejection be withdrawn.

Claims 1, 2, 8, 10, 11, 32, and 33 are rejected under 35 U.S.C. § 102(a) as being anticipated by Cundy et al., "Some observations on the preparation and properties of colloidal silicates. Part I: synthesis of colloidal silicalite-1 and titanosilicalite-1 (TS-1)," Microporous and Mesoporous Materials, 66 (2003): 143 to 156 ("Cundy"). Applicants respectfully disagree with and traverse this rejection.

Cundy fails to disclose a synthetic metal-containing colloidal silicate composition including a metal-silicate lattice solid phase with metal covalently copolymerized and incorporated within colloidal particles of the solid phase. On the contrary, Cundy merely uses

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structure directors to synthesize zeolite crystals. It is well known in the art that structures such as the Cundy silicalite-1 product is void of such covalently copolymerized and incorporated metal. Though the Examiner's characterization of Cundy is partially correct, in that titanium metal is multivalent, this characterization does not account for the fact that Cundy does not in any way disclose that titanium is covalently attached to the colloidal silicate particles in the claimed amounts.

Therefore, Applicants respectfully assert that Amended Claims 1, 8, 10, 11, 32, and 33 are patentably distinct over Cundy. Applicants respectfully request that this rejection accordingly be withdrawn.

With respect to all of the rejections under 35 U.S.C. §§ 102(a) and 102(b) discussed above, Applicants respectfully note that to constitute anticipation, all the elements of the claimed invention must be described in a single reference. *Richardson v. Suzuki Motor Co.*, 2 USPQ2d 1913, 1920. Further, the claimed invention must be described sufficiently to have placed a person of ordinary skill in the art in the field of the invention in possession of it. *Akzo N.V. v. United States Int'l Trade Comm'n*, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986); *In re Coker*, 175 USPQ 26, 29 (CCPA 1972).

Moreover, the Examiner's attention is directed to the decision of the CAFC in *Sanofi-Synthelabo, Sanofi-Synthelabo, Inc., and Bristol-Myers Squibb Sanofi Pharmaceuticals Holding Partnership v. Apotex, Inc. and Apotex Corp.*, No. 06-1613, Decided Dec. 8, 2006, in which the court held that in order to anticipate, the prior art reference must disclose a "pattern of preferences" pointing to the claimed invention. *See* pages 11-12.

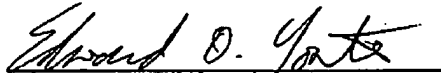
Applicants respectfully assert that by neither expressly nor inherently disclosing each and every element of the claimed invention, none of the references of record provide the "pattern of preferences" required to anticipate Applicants' claims. Accordingly, Applicants respectfully request that the rejections based upon Watanabe, Finlayson, Mintova, and Cundy be withdrawn.

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**CONCLUSION**

In view of the foregoing amendments and remarks, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 112, second paragraph, and 35 U.S.C. §§ 102(a) and 102(b). Applicants respectfully assert that all pending claims in this Application are in condition for allowance and earnestly solicit early notice to this effect.

Respectfully Submitted,



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